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ILLUSTRATIONS AND DESCRIPTIONS OF CUP-FUNGI—II. SEPULTARIA

FRED J. SEAVER

(WITH PLATE 161, CONTAINING 3 FIGURES)

The genus *Sepultaria* was founded by Massee,¹ the name having been first used by Cooke for a subgenus of *Peziza*. The genus was based on *Peziza sepulta* Fries,² one of the few species of true hypogaeous cup-fungi.

Previous to the publication of *Peziza sepulta* by Fries, Léveillé³ described a species with similar characters under the name of *Peziza arenicola*. According to Léveillé, the latter species is peculiar in its mode of development, since the apothecia are at first subglobose and entirely concealed in the ground. After abundant rains they open and then for the first time become visible. The outer surface is covered with long fine hairs which bind the sand to the outside of the apothecia so closely that it is not easily detached.

According to Berkeley and Broome who published Fries's manuscript name of *Peziza sepulta*, this species is closely related to *Peziza arenicola* Lév. and also has a close resemblance to *Hydnocystis* Tul. The plants of the latter genus are said by Tulasne not to open to the surface and in this respect only they differ from those of *Sepultaria*. *Hydnocystis* is commonly placed among the *Tuberales*.

The writer has examined a specimen of *Peziza arenicola* Lév. from Léveillé and also a specimen of *Peziza sepulta* Fries from Scandinavia and find that the two are identical.

What appears to be the same species has been frequently collected by Professor Ellsworth Bethel in the vicinity of Denver, Colorado. He writes that the fungus is entirely submerged with

¹ Massee, Brit. Fungus Fl. 4: 389. 1895.

² Ann. Mag. Nat. Hist. II. 13: 463. 1854.

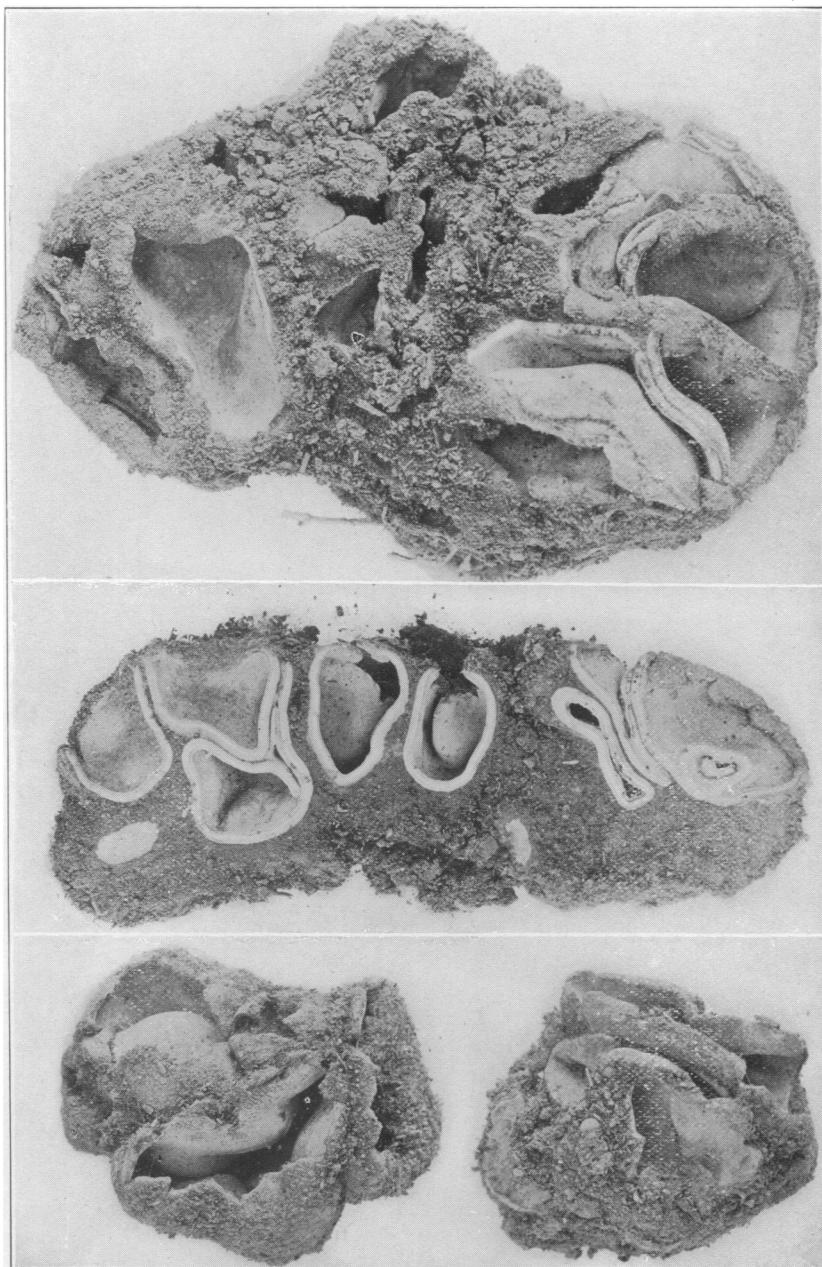
³ Ann. Sci. Nat. III. 9: 140. 1848.

them and is frequently collected by his students who know it as the "hole in the ground," since they find it by looking for holes in the sandy soil. Mr. Ellis was at first inclined to regard the Colorado plants as a new species but finally came to the conclusion that the species was identical with *Peziza sepulta* Fries, according to notes in the Ellis Collection.

The writer has recently received from Mr. W. H. Long in New Mexico fine specimens of a *Sepultaria* which closely resembles the species so frequently collected by Bethel in Colorado. According to the collector, the New Mexican plants do not protrude above ground at all in any of the thirty or forty specimens collected, although the soil is said to be slightly raised when the apothecia break. When mature, small cracks appear in the tops of the apothecia which if the soil is not too firm around them will expand and finally expose some of the hymenium. The New Mexican material was shipped fresh and was received in excellent condition. From some of this material the accompanying photographs were made.

While the New Mexican plants are closely related to *Sepultaria arenicola* (Lév.) Massee, they seem to differ in the form of the spores which are ellipsoid but only slightly longer than broad, while those of the former are often twice as long as broad. Aside from this, the New Mexican plants appear to differ in general habits. Gross characters, however, such as congested habit are taken with considerable allowance since the writer has had no opportunity to make a study of the Colorado plants in a fresh condition and the New Mexican plants are known only from the specimens described here. From the studies which have been made, the New Mexican plants are regarded as distinct.

Specimens which have been referred to *Sepultaria arenicola* (Lév.) Massee, have occasionally been collected in different parts of the east, although the species seems like the one here described to be characteristic of the dry plains of the west. A number of other species have been referred to the genus which are smaller and only partially buried. So far as known, the genus at present contains five species for North America, including the one here described.



SEPULTARIA LONGII SEAVER

The genus should not be confused, as has often been done, with *Sarcosphaera* which differs from *Sepultaria* in the absence of the long brown hairs which are so characteristic of the plants of the latter genus. The two genera agree in that both are hypogaeous. So far as habits are concerned, *Sepultaria* seems to be intermediate between the Pezizales and the Tuberales although with the exception of *Hydnocystis* the fruit characters are not nearly so suggestive of the Tuberales as are those of some other discomycete genera such as *Boudiera* and *Lamprospora*. However that is a question for the morphologist.

Sepultaria Longii sp. nov.

Apothecia densely gregarious or cespitose, at first closed and entirely buried, finally opening to the surface by an elongated or compressed aperture, or when the substratum is not too compact spreading so as to expose the hymenium, never protruding above the surface of the substratum but causing the soil to become slightly elevated as they mature, reaching a diameter of 4 cm., regular in form or becoming very much contorted from mutual pressure, externally pale-brown and entirely clothed with long hairs which extend into the substratum, binding the surrounding soil closely to the outside of the apothecium; hairs flexuous, septate, brown, and of nearly uniform thickness throughout their entire length; asci subcylindric above, tapering gradually below into a stem-like base, reaching a length of 250-300 μ and a diameter of 20-22 μ ; spores 1-seriate, short-ellipsoid or subglobose, at first containing one small oil-drop which gradually enlarges until it nearly fills the spore, about 18-20 \times 20-22 μ ; paraphyses stout, gradually enlarged above where they reach a diameter of 4-6 μ , filled with numerous vacuoles or oil-drops, hyaline.

On bare ground.

TYPE LOCALITY: Albuquerque, New Mexico.

DISTRIBUTION: Known only from the type locality.

EXPLANATION OF PLATE CLXI

Upper figure, group of apothecia partially concealed by the soil; middle figure, section through the cluster of apothecia showing their hypogaeous habit; lower figure, several apothecia removed from the soil.